

(12) United States Patent Quinn et al.

(10) Patent No.:

US 6,585,806 B2

(45) Date of Patent:

Jul. 1, 2003

AIR DRYER RESERVOIR MODULE (54) **COMPONENTS**

(75) Inventors: Leonard A. Quinn, Elyria, OH (US);

Fred W. Hoffman, Columbia Station, OH (US); David J. Goodell, Beaverton,

OR (US)

Assignce: Bendix Commercial Vehicle Systems

LLC, Elyria, OH (US)

Subject to any disclaimer, the term of this Notice:

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

Appl. No.: 09/571,897 (21)

(22)Filed: May 16, 2000

(65)**Prior Publication Data**

US 2001/0052291 A1 Dec. 20, 2001

Related U.S. Application Data

- Continuation of application No. 09/030,583, filed on Feb. 25, 1998, now Pat. No. 6,074,462, which is a continuation-in-part of application No. 08/993,931, filed on Dec. 18, 1997, now Pat. No. 5,917,139.
- (51) Int. Cl.⁷ B01D 53/04; B01D 53/26
- U.S. Cl. 95/121; 96/113; 96/136; 96/144; 96/147; 55/DIG. 17
- Field of Search 55/DIG. 17; 96/108, 96/109, 113-116, 130, 136, 143, 144, 147; 95/117-119, 121

(56)References Cited

U.S. PATENT DOCUMENTS

3,080,693 A	•	3/1963	Glass et al 96/113
3,242,650 A	•	3/1966	Crawford 96/113
			Kauer, Jr. et al 96/113 X
3,464,186 A	٠	9/1969	Hankison et al 96/115
3,572,008 A	*	3/1971	Hankison et al 95/105
3,592,563 A	•	7/1971	Glass et al 96/136 X
3,714,763 A	٠	2/1973	Suzuki 96/113

3,831,353 A		8/1974	Toth 55/387
3,937,622 A	٠	2/1976	Hewitt et al 96/113
4,272,265 A	*	6/1981	Snyder 96/115
4,285,702 A		8/1981	Michel et al 55/33
4,326,489 A		4/1982	Heitert 123/520
4,373,938 A	*	2/1983	McCombs 96/114

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

DE	35 04 884	•	7/1986	 96/111
EP	0 497 570		8/1992	
JP	57-47056		10/1982	
JP	60-022555	•	2/1985	 96/109
JP	60-064616	•	4/1985	 96/113
JP	62-149320	•	7/1987	 96/108

OTHER PUBLICATIONS

"Brakes of Commercial Vehicles: design and function; test and maintenance work" by Hans Peter Klug, Second Revised and enlarged edition; Wurzburg Vogel, 1990 (2 page article with 3 page translation attached).

Primary Examiner-Robert H. Spitzer

(57)ABSTRACT

An air dryer and reservoir assembly for providing compressed air from an air compressor (20) on a heavy motor vehicle which includes an air dryer (14) connected to receive compressed air from the air compressor (20) and a secondary reservoir (12), including an integral purge volume (34), for storing compressed air which passes through the air dryer (14), with the air dryer (14) and the secondary reservoir (12) being securely attached to a housing (16) to form an air dryer reservoir module (10). A primary reservoir (18) for storing compressed air from the air dryer (14) is located remote from the air dryer reservoir module (10). A pressure equalizing mechanism (57) is disposed between the primary reservoir (18) and the secondary reservoir (12) for keeping pressure in the two reservoirs (12,18) equal. Components located within the housing (16) control air flow between the air dryer (14) and the primary and secondary reservoirs (18,12) and also monitor the pneumatic brake system circuits fed by the primary and secondary reservoirs (18,12).

48 Claims, 6 Drawing Sheets

